CLAIMS:

1. Magnetic resonance method for fast dynamic imaging of a plurality of signals acquired by an array of multiple sensors, whereas prior to imaging a sensitivity map of each of the sensors being provided, at least two adjacent sensors recording signals originating from the same imaging position, which signals being weighted with the sensitivity factor of the respective sensor at the respective imaging position and the image intensity being calculated from the signals measured by the different sensors, whereas the number of phase encoding steps being reduced with respect to the full set thereof, characterised in that k-space being segmented into regions of different acquisition, whereas in the region of a first acquisition type data of normal magnetic resonance imaging with a full set of phase encoding steps or data of fast dynamic imaging with a number of phase encoding steps being with a low reduction factor with respect to the full set thereof is acquired for a first partial image and in the region of a second acquisition type data of fast dynamic imaging with a full reduction factor is acquired for a second partial image, whereas the first and the second partial images forming the full image of the object to be imaged.

2. Magnetic resonance method according to claim 1, characterised in that the data of the first acquisition type will be reconstructed to the first partial image and the data of the second acquisition type will be reconstructed to the second partial image.

3. Magnetic resonance method according to claim 1, characterised in that the data for fast dynamic imaging is acquired simultaneously from spatial harmonics on several adjacent trajectories in k-space, which data will be reconstructed to an image

4. Magnetic resonance method according to one of the claims 1 to 3, characterised in that the first partial image is reconstructed from data of the first acquisition type and the second partial image is reconstructed from data of the second acquisition type.

5. Magnetic resonance method according to one of the claims 1 to 3, characterised in that acquisition in the first and second regions will be obtained by regularly scanning over the full object and dropping the data outside the particular acquisition region.

6. Magnetic resonance method according to claim 4, characterised in that the first acquisition region is the central region of k-space and the second acquisition region is the outer k-region.

7. Magnetic resonance method according to one of claims 1 to 6, characterised in that the first acquisition region and the second acquisition region overlap to a predetermined extent.

8. Magnetic resonance method according to one of claims 4 to 7, characterised in that the determinant of the set of equations for every pixel of the resulting image will be computed and that the image of the pixel will be selected from data of the second region if the determinant is exceeding a predetermined threshold value and otherwise be selected from the data of the first region.

9. Magnetic resonance method according to one of claims 4 to 7, characterised in that the resulting image is combined as

$$I = f(D) * L + (1-f(D)) * S$$

whereas:

I = the resulting image

D = determinant of the equations for every pixel

f(D) = function that approaches to 1 for low values of D and approaches to 0 for high values of D

L = data of the first region

S = data of the second region.

10. Magnetic resonance method according to one of the claims 1 to 9, characterised in that the data of the first acquisition method are filtered by multiplying with a tapering function, especially a Riesz-function or the like, before fast Fourier transformation.

11. Magnetic resonance method according to one of the claims 1 to 10, characterised in that the sensitivity map is derived from a combination of the root sum of squares of the data from each of the sensors.

12. Magnetic resonance method according to one of the claims 1 to 10, characterised in that the sensitivity map is derived from the sum of data of the first acquisition method of each of the sensors.

13. Method according to claim 12, characterised in that the data of each of the sensors are corrected in phase, especially by correction to an average phase of zero.

14. A magnetic resonance imaging apparatus for obtaining a fast dynamic image from a plurality of signals comprising:

- an array of multiple sensors for recording signals,
- means for scanning the object along phase encoding trajectories,
- control means for skipping part of the phase encoding trajectories,
- calculating means for reconstruction of an image from signals recorded by sensors of different spatial positions with respect to the object to be imaged in order to obtain a fast dynamic image

characterised by

- means for segmenting k-space into regions of different acquisition,
- means for reconstruction a first partial image in the region of a first acquisition type from data of normal magnetic resonance imaging with a full set of phase encoding steps or from data of fast dynamic imaging with a number of phase encoding steps being with a low reduction factor with respect to the full set thereof
- means for reconstruction a second partial image in the region of a second acquisition type from data of fast dynamic imaging with a full reduction factor, and
- means for forming a full image of the scanned object from the first and the second partial images.

15. A computer program product stored on a computer usable medium for forming a fast dynamic image with the magnetic resonance method, comprising a computer readable program means for causing the computer to control the execution of

- a recording procedure of signals from an array of multiple sensors

- a procedure for scanning the object along phase encoding trajectories,
- a control procedure for skipping part of the phase encoding trajectories,
- a calculating procedure for reconstruction of an image from signals recorded by sensors of different spatial positions with respect to the object to be imaged in order to obtain a fast dynamic image,

characterised by

- a procedure segmenting k-space into regions of different acquisition,
- a reconstruction procedure for forming a first partial image in the region of a first acquisition type from data of normal magnetic resonance imaging with a full set of phase encoding steps or from data of fast dynamic imaging with a number of phase encoding steps being with a low reduction factor with respect to the full set thereof ,
- a reconstruction procedure for forming a second partial image in the region of a second acquisition type from data of fast dynamic imaging with a full reduction factor, and
- a procedure for forming a full image of the scanned object from the first and the second partial images.